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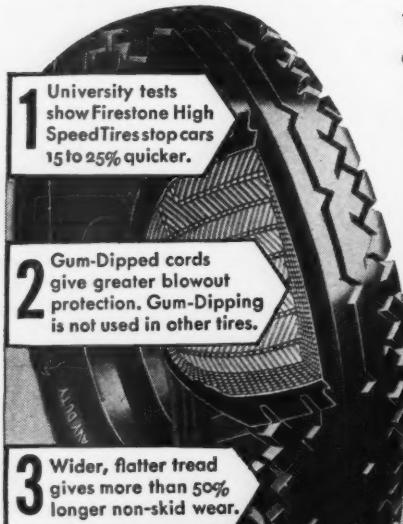
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**T**HE body of this tire is built with patented Gum-Dipped Cords, giving it extra strength and greater flexing ability without creating heat, the greatest enemy of tire life.

The extra-heavy super traction tread on this tire is scientifically designed to prevent the bumpiness on smooth roads that is so objectionable in other tires designed for traction in soft ground. This heavy self-cleaning tread, required to withstand unusual pulling traction and strains, is securely locked to the cord body by Firestone's patented construction of two extra Gum-Dipped cord layers under the tread.

These new and unusually effective Firestone super traction tires enable you to operate your tractors, trucks and passenger cars for all kinds of farm work and over ground and roads that could not be traveled with ordinary tires, even equipped with chains.



**\$745**  
4.50-20

**HIGH SPEED TYPE**

*Gum-Dipped*

Made with the highest grade of rubber and cotton. Accurately balanced and rigidly inspected and we know it is as perfect as human ingenuity can make it.

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5.00-19	<b>8.80</b>	5.25-18 HD	<b>12.20</b>
5.25-18	<b>9.75</b>	5.50-17 HD	<b>12.75</b>
5.50-17	<b>10.70</b>	6.00-17 HD	<b>14.30</b>

*Other Sizes Proportionately Low*



## GROUND GRIP TIRE

*Gum-Dipped*

SIZE	PRICE
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4.75/5.00-19	<b>10.60</b>
4.50/4.75/5.00-20	<b>10.35</b>
5.25/5.50-17	<b>12.50</b>
5.25/5.50-18	<b>12.75</b>
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Equal or superior to any so-called First Grade, Super or Deluxe line regardless of name, brand or manufacturer.	Equal or superior to any special brand tire made for mass distributors, advertised as their first line tire without the manufacturer's name or guarantee.	This tire is of good quality and workmanship, carries the Firestone name and guarantee, and is equal or superior to any tire made in this price class.	For those car owners who need new tire safety at a very low price this tire has no equal.
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Other Sizes Proportionately Low	Other Sizes Proportionately Low	Other Sizes Proportionately Low	Other Sizes Proportionately Low

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# American FRUIT GROWER

AUGUST

Vol. 55

(Title Registered in U.S. Patent Office)

No. 8

1935

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## AMERICAN FRUIT GROWER

Published Monthly by

AMERICAN FRUIT GROWER PUBLISHING CO.  
1370 Ontario St., Cleveland, O.

### SUBSCRIPTION RATES

Domestic, Except Cleveland, 3 years \$1.00, 1 yr. 50c.  
Cleveland and foreign (except Canada) \$1.00 per year.  
Canada (including tax) \$1.50 per year.  
Entered as second-class matter at Post Office at  
Cleveland, Ohio, under the Act of March 3, 1879.  
Additional entry at Mount Morris, Illinois.

E. G. K. MEISTER

Publisher

DEAN HALLIDAY DR. J. H. GOURLEY  
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AUGUST, 1935

Representing  
a  
Billion Dollar  
Industry

## ONLY CHANGE IS CONSTANT

EARLY in the morning in the factory of one of the largest and most famous concerns in the country, a man may frequently be seen walking from department to department and nodding "Good Morning" to the workers as they take their places at benches and machines. Seeing him making his early morning rounds, one might naturally mistake him for a factory superintendent; instead, however, he is the President and largest stockholder of the great corporation itself.

The man is to be seen on morning tours of his factory because he loves the business which, as the saying goes, he "built from the ground up." It is not only sentiment with him, not merely that he takes pride in the great bulk of the plant buildings, but it is very love for the business as a whole that causes him to walk about seeking opportunity to improve it by changing this or that method of operation. It is this man's willingness to make changes when and where necessary that has made him the success that he is.

Occasionally we hear of an orchard that will not bear fruit, in spite of the efforts of its owner. Sooner or later, however, the reason is discovered and the remedy is, most frequently, a simple one.

Not long ago an orchardist spent a huge fortune in an effort to make his trees bear fruit. He finally died of a broken heart. Sometimes sentiment interferes seriously with reason. The orchard, under the management of a trustee, became profitable. No miracle had been accomplished, but some changes brought startling results.

These changes have frequently been suggested in the editorial columns of *American Fruit Grower*. Most good remedies are simple, but because the reason for failure is frequently obscure, it is natural to hunt for some complicated solution.

A large manufacturer once hired an expensive consulting engineer to solve a stubborn problem. In due time, the engineer submitted a carefully prepared brief, outlining a remedy of the difficulty and collected a fee of \$500.00.

In going through some old issues of a trade paper, which this manufacturer received but did not read, he discovered, much to his dismay, that the substance of the brief for which he had paid \$500.00 had appeared in an article in his paper.

Such is frequently the case. We read much that apparently is of little interest and value to us now. Later, when some apparently new problem presents itself, we rely upon our memory for help. Judgment is more frequently the result of careful reading than that unknown mental faculty of always knowing just what to do. When you read the pages of *American Fruit Grower*, do so with the same open mind of the company president, walking through his factory. Be on the lookout for new ways and means of growing better and more profitable fruit.



**Kenneth B. Pocock, General Chairman, Cleve-  
land Convention Committee.**



**William H. Baggs, President, Pittsburgh.**



**Harry S. Hall, Treasurer, Detroit.  
(Bachrach Photo)**



**Joseph A. Schwalb, Vice-President, New York**

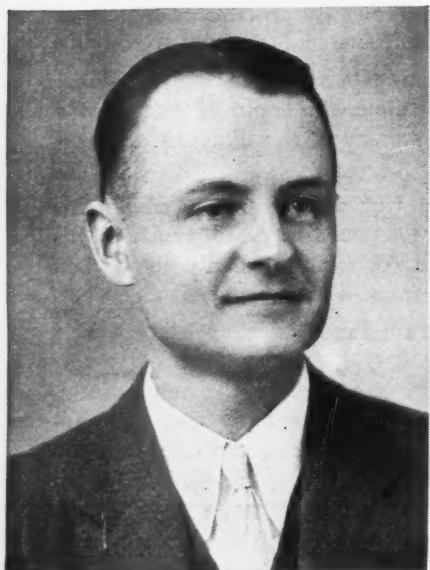
## ACTIVE IN 40th APPLE CONVENTION

**R**ESPLENDENT with outstanding attractions, both business and social, the 40th annual convention of the International Apple Association will be held in Cleveland, August 13 to 16. The main address of the business sessions will be, "The Dangers of Regimentation and Bureaucracy," to be delivered by Hon. Harry F. Byrd, Senator from Virginia and a prominent apple producer in his home state.

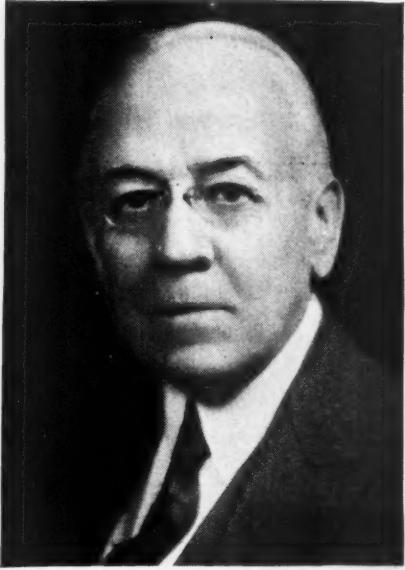
Hon. William Phillips, acting Secretary of State, will talk from Washington over the N.B.C. radio facilities to those in attendance in Cleveland. Dealing with the export situation, F. A. Motz, foreign agricultural representative of the United States Department of Agriculture in London, is another of the principal speakers. "Lifting the Lid in Washington" is the subject selected by J. Fred Essary, Washington correspondent for the *Baltimore Sun* for his talk before the convention. Cleveland contributes to the list of speakers with Russell Weisman, Associate Editor of the *Cleveland Plain Dealer* and Professor of Economics at Western Reserve University.

Pictured on this page are some of the officers of the association and others who have been active in preparing for the convention. The Cleveland trade, as host for the meeting, has been busy for the past several weeks in preparing a fine program for its vacation city.

(Convention Story on Page 10)  
**AMERICAN FRUIT GROWER**



**Robert T. Bly, Executive Committee, Charles  
Town, W. Va.**



**R. G. Phillips, Secretary, Rochester**



**J. Walter Hebert, Executive Committee, Yel-  
ma, Washington.**

AUGUST, 1935

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# Changes in ORCHARD Practices



Heavy oats cover crop in the Ohio Agricultural Experiment Station orchards at Wooster.

## Emphasize Importance of Autumn Work

By J. H. GOURLEY

Ohio Experiment Station

AN inventory of orchard practices will show some changes of major importance during the past decade—or less. Some of these are brought about as a result of definite experimental work and others out of the experience of growers. It is certain that the near future will see others, for "what passes as fact today may well meet with smiles tomorrow." It is a mere platitude, but true, that unless one is capable of admitting that everything he now does could conceivably be done better, there can be no progress with that individual. Many of these changes come so gradually that it is not easy to say where

or when they started. It is to our credit, however, if we can change our minds and look at new evidence impartially and act in accordance with it.

Among the most outstanding of these changes is the increased number of cultural practices which must be done in the autumn. Many of the subjects taken up in the following discussion have their practical applications in the fall while previously they were carried out during other seasons.

### The Soil

For 35 years the term *cover crops* has been a household word with the

orchardist, a term, by the way, first used by Dr. L. H. Bailey. If a crop of soy beans, buckwheat, rye or some other legume or non-legume was grown between the trees, no matter how meager it was, our consciences were clear because we were following the approved practice. In how many cases on hill lands have we seen a peach or apple orchard where sheet erosion, or worse, was annually taking the surface soil to the lowlands, and yet we labored under the impression that the little cover crop was building up the organic matter of the soil. What folly! In such cases the thin residuum of organic matter was rapidly removed and the tillage was each year responsible for burning out more organic matter than was being replaced. This is undoubtedly true, also, in many orchards which are on comparatively level land.

When this situation is realized, the usual practice will be discarded and every effort made to retain the native supply of organic matter and whatever practice is used will add rather than subtract from that supply. This may mean a permanent cover in some cases and in others an occasional disk-ing or use of the weed hog to discourage and partially destroy the heavy blue grass or other cover that



Apple trees at the Ohio Station treated with double applications of cyanamid gave the same results as those with the normal treatment of one-fourth pound for each year of the tree's age.

becomes established beneath the trees. Already this is being practiced and a combination of partial tillage and partial sod is being used. What is known as the short sod rotation is practically the same thing.

The mulch system for apples and pears has already shown its worth during the dry seasons of recent unpleasant memory and it may find a wider place, even in peach orchards. This system does not add organic matter to the soil, as is sometimes expressed, but does increase the penetrability of water and goes far to reduce its loss by evaporation. The mechanical and biological conditions beneath such trees are greatly benefited.

Where cover crops are grown, the soil should be limed and fertilized so that luxuriant crops can be returned to the soil instead of the sparse ones so often seen.

This change in viewpoint is a major one and will do something to bring about more regular and heavier bearing of the trees.

#### Fertilization

In most regions of the northern and eastern United States the rarer elements have played no part, as yet, in orchard fertilization. Nitrogen, and nitrogen only, has been the rule for a quarter of a century. Here and there instances appear where potash or a complete fertilizer has been of decided benefit. But such cases seem to be rather rare. This applies only to the use of those salts beneath the trees and not to their use in growing a better cover or inter-crop. Examination of the soils shows that the phosphorus and potassium (potash) do not move downward in the soil but remain where they are placed or to the depth of tillage. Whether beneficial results will be secured when they are placed at a greater depth remains to be seen and work along this line is in progress at several places.

The time of application of nitrogen fertilizers does represent a distinct shift in practice, however. For some 15 years experiments have been under way to determine the value of applying nitrogen in the fall versus spring and, also, a combination in fall and spring—generally known as split applications. Some dozen states have already reported favorably upon fall treatments, which is sufficient evidence to warrant such a practice, particularly where the labor distribution is better and where it is easier to get on the land in the fall than in early spring. In examining orchards which have been treated in the fall with cyanamid for the past two or three years the foliage is of dark green color and the general appearance and yield of the trees seem equal to those treated with any type of nitrogen fertilizer in the spring. The same applies to our own experiments with sulphate of ammonia and nitrate of



Another item for autumn consideration. The above portable picking ladder is in use on the fruit farm of Emery Leow of near Oak Harbor, Ohio. Mr. Leow is enthusiastic about this type of ladder and says that he would not be without one at picking time.

soda applied in the fall. In one state June and September applications have proved superior with peaches to early spring treatments. In another, equally good and sometimes better results were secured with apples when nitrogen was applied some time between late September and the middle of October. It is suggested in other quarters that annual bearing and less susceptibility to winter injury may occur where the treatments are made in autumn.

It would appear at present that the application of these materials may be made any time from the latter part of September until at least mid-November. Since tree roots absorb nitrogen in large amounts nearly all winter it is not necessary that the leaves be on the trees at time of application, although a convenient time would be immediately after fruit harvest.

Small fruits, such as strawberries and raspberries, have likewise given excellent results from fall applications of nitrogen.

All this is a significant change and more experimental evidence is accumulating to the effect that fall treatment of practically all fruit plants is equal to and sometimes superior to spring applications.

#### Spraying

Much has transpired in the field of

AMERICAN FRUIT GROWER

spraying to change practice to some extent and yet no great fundamental changes have occurred. More and more oil is used as a dormant or delayed dormant spray, as well as for summer use to a limited extent. Fluorine sprays (cryolite) are being used to a greater extent as a substitute for arsenate of lead but in the main the elemental materials of copper, lime, sulphur and arsenic are the dominant ingredients of most sprays.

Probably the greatest change here is the success of the dilute or modified formulas of Bordeaux mixture and lime sulphur. It is a constant source of surprise to find how effectively most diseases can be kept under commercial control with improved condition of foliage and finish of fruit if the concentration of either of these materials is weakened below the older formulas. No set strength can be given as final, for it will vary to some extent with varieties, section of the country and other conditions. But it can be stated with considerable confidence that the extensive burning of foliage and russetting of fruit can be greatly reduced or eliminated and yet control of the common diseases of apples and pears secured. Likewise, the use of extra lime in the sprays will reduce burning from arsenic and control codling moth nearly as effectively as where the lime is omitted. It is strange how slowly this innovation is accepted in the face of extensive evidence and the experience of many successful growers.

#### Mechanical Equipment

One of the most outstanding developments during recent years has been the improvement in orchard equipment. This is true of sprayers, sizing machines, washing machines, tillage tools, refrigeration machinery and packages. These have had a marked influence on the industry and have been constantly improving the quality and marketability of the product. Probably further advance in economy of production will come through the development of more efficient equipment.

It would be difficult to discuss or even list all the shifts in orchard practice, for they vary with growers and with geographical location. Perhaps the one that is uppermost in the minds of orchardists is the washing or wiping of fruit to remove spray residue. This has been forced on the growers by the health authorities. It is not within our province to pass judgment on the question of whether the residue really constitutes a danger to health or not; this apparently has been done for us. But the addition of a new piece of equipment costing from \$500 to \$1,500 is of concern to most growers. So long as arsenate of lead is the chief insecticide, it looks as though there would be no escape from removing the residue from the fruit. Brushing the residue from the fruit. Brush-

(Continued on page 10)

AUGUST, 1935

# THE COST OF APPLE WASHING

By C. L. BURKHOLDER and T. E. HIENTON  
Purdue Agricultural Experiment Station

In recent years apple prices have been near, and sometimes actually below, the cost of production. Naturally, a new item of expense in either the production or packing end of the work merits careful study. Under such conditions many growers feel that the installation and operation of apple washing equipment will add a heavy charge to the present overhead expense per bushel.

At the Purdue Agricultural Experiment Station orchard at Bedford, Ind., complete washing costs have been kept for the past four years. From 1931 to 1933 an underbrush washer was used with a capacity of about 55 level bushels per hour at 30 seconds exposure. A 3 H.P. motor was used to power the washer. From 7,600 to 16,000 bushels were cleaned each year. The fourth year of the records is on a new Model E underbrush-flood washer which had a capacity of about 60 per cent per hour of the old washer when the same length of exposure was used. Depreciation was figured at 15 per cent. All labor costs, except dumping fruit into the washer, were included along with chemicals, interest on investment, power, repairs and replacements. In Table 1 is a summarized table of costs for the underbrush and underbrush-flood washers.

The total cost was approximately one cent per bushel for 1931-1933,

and two cents per bushel for 1934. The increased cost per bushel in 1934 was not only the result of the lower hourly capacity of the new underbrush-flood washer, but also due to the light crop in 1934 and can be best compared to the costs on the old washer used in 1932. (See Table 1.) Naturally, the greater the volume of fruit put through a washer or sizer each year, the lower the cost per bushel, as many items of overhead expense are the same each year regardless of the quantity of fruit cleaned.

Table 1.

Year	No. of bushels*	Total cost per bushel
1931	15,948	\$0.0084
1932	7,600	0.0157
1933	14,105	0.0090
1934	8,900	0.02**

\*Level bushels.

\*\*1934 washer had 40 per cent lower capacity per hour.

As many growers require washing equipment with capacity sufficient to handle 1,000 to 1,200 level bushels per day, complete costs were also kept on a new Model X flotation washer with a capacity of 90 to 95 level bushels per hour at two minutes exposure. A 2 H.P. motor was used to operate the washer, and as in the case of the cost figures for the underbrush and the underbrush-flood washers, no charge was made

for dumping fruit into the washer. A total of 36,494 level bushels was put through this machine at a cost of 85/100 cent per bushel. The total cost of the Model X flotation washer was about \$1,000, and overhead and all other charges were figured as in Table 1.

In 1934 a tandem or dual washing hook-up was used in several large packing sheds in Indiana. Sodium silicate was used in the first unit and hydrochloric acid in the second. The cost records we present are on a total of 7,977 bushels and show a cost of approximately one cent per bushel. In this case the total original cost of the entire tandem set-up was figured at \$1,100.

Overhead charges on the flotation washer section were distributed over 36,494 bushels which helped to keep down the cost per bushel for the tandem treatment.

Still another item of apple washing expense may be that of heating the cleaning solution. When lead and arsenic loads do not greatly exceed the Federal tolerances, heating is not necessary. Some increased removal can be obtained with cold cleaning solutions by using a wetting agent or neutral soap. If this combination fails, increased removal may be obtained by slowing down the machine, thus increasing the time of exposure. In most packing

(Continued on page 9)



Washing fruit with modern equipment in a Michigan fruit exchange.  
AMERICAN FRUIT GROWER

# AMERICAN POMOLOGY

A Page Conducted in the Interests of the  
American Pomological Society

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Edited by H. L. LANTZ, Secretary

## NOTE CHANGE IN DATE

## 51st CONVENTION OF THE AMERICAN POMOLOGICAL SOCIETY

Hartford, Conn.

At the request of the Connecticut Pomological Society and the co-operating New England and New York Horticultural Societies, the dates have been changed to

**DECEMBER 10, 11, 12, 13**

This change was made necessary in order to secure The Hartford Armory to accommodate the New England Fruit Show, which will be a feature of the event.

## GENERAL COMMITTEE OF ARRANGEMENTS

## THE NATIONAL FRUIT GROWERS CONGRESS

Hartford, Conn.

**DECEMBER 10, 11, 12, 13, 1935**

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Publicity—H. C. C. Miles; Elliot H. Platt; Raymond K. Clapp; C. M. Winslow, Hartford Chamber of Commerce.

## Program

**A** PRELIMINARY meeting of 25 members of the general committee of arrangements was held at Hartford, Conn., July 8, at which time a comprehensive program covering production, marketing, advertising, exports and legislative problems was proposed and many specific subjects and speakers were suggested. A second meeting will be held at Amherst, Mass., July 30, to complete the arrangements. The following states were represented at the Hartford meeting: Connecticut, Massachusetts, Vermont, New Hampshire, Rhode Island and New York. The complete program will be announced in the September issue.

## Proceedings Mailed

Early in July the proceedings of the 50th convention was mailed to each paid up member of the American Pomological Society. We have considerable pride in this proceedings and hope every member who has received his copy has taken time to pursue its contents. The latest information on codling moth control, the business of washing fruit, irrigation as applied to eastern orchards, naming varieties, bud sports, transportation, economics for the fruit grower; all these and many more subjects are discussed in the report.

Memberships have been coming in steadily. We hope this announcement that the Proceedings is ready for distribution will bring in many more memberships.

Membership dues are \$1.25 per year; and give A.P.S. members a year's subscription to AMERICAN FRUIT GROWER as well as a copy of the Proceedings of the last convention. Those who are already receiving AMERICAN FRUIT GROWER, and those who live in Canada may remit \$1.00 for membership and will receive the Proceedings and all other circular material which may be sent out from the offices of the president and secretary.

## Revive the Fruit Exhibit

State horticultural societies, local horticultural groups, state fairs, and others are urged to feature fruit and fruit product exhibits more intelligently and attractively than at any time in the past. The advertising value of exhibiting spectacular products like fruits is very great. The A. P. S. recommends emphasizing the following types of exhibits more prominently.

(1) Practical exhibits of correct grading using examples from growers' packs taken from commercial storage. Such exhibits for obvious reasons should be anomalous and conducted under strict supervision. They are remarkably effective in improving grades.

(2) Use of fruit in cookery. It would be hard to get too many classes in such a department. The competition, interest and educational values are enormous.

(3) Window dressing with fruits and roadside stand arrangements are greatly needed classes. The ideas thus assembled should be photographed and passed on to the retail trade and other growers for general use.

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# THE COST OF APPLE WASHING

(Continued from page 7)

sheds slowing down the washer is not a practical method of increasing residue removal, as few washers have a normal capacity in excess of the daily packing needs of the orchard.

Heating the washing solution increases residue removal! However, the first question is, "What is the cost per bushel of installing and using heating equipment?"

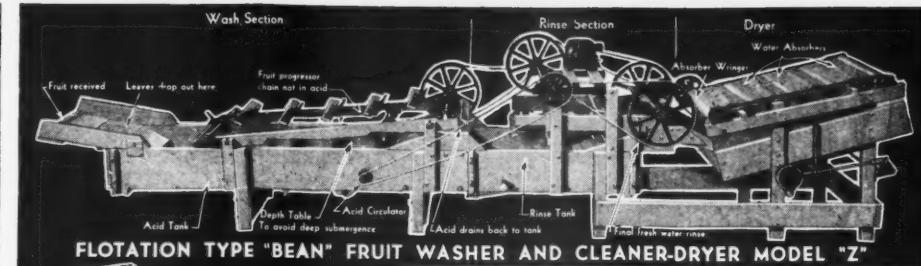
In our work in 1934, two 5 K.W. electric heaters sheathed with acid resistant monel metal were used. On the Model E underbrush-flood washer, with 50 gallons of cleaning solution, two 5 K.W. heaters maintained a temperature of 105 to 107 degrees. One heater held a temperature of 80 to 83 degrees. It cost 12½ cents per hour to operate each heater at 2½ cents per K.W.H. When the fast speed, or 20 seconds exposure gear was used, maintaining a temperature of 105 to 107 degrees, the cost was 53/100 cent per bushel and for the slower, or 30 seconds gear, 83/100 cent per bushel. Depreciation at 25 per cent was charged on the original cost of \$25 per heater. When only one heater was used in the Model E machine the cost was one-fourth cent per bushel.

The Model X flotation washer carries 240 gallons of liquid in the cleaning compartment. Operated at two minutes exposure it has a capacity of about 95 level bushels per hour. Two 5 K.W. monel metal heaters maintained a temperature of 87 to 89 degrees with an apple temperature of 65 and an air temperature of 65 degrees. Cost was 28/100 cent per bushel.

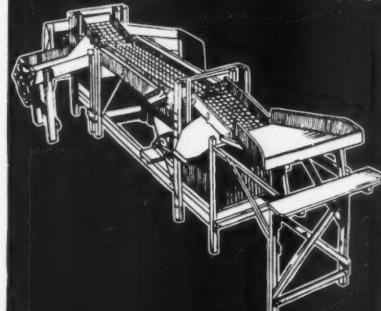
The underbrush washer was a part of the tandem hook-up in one of our Indiana packing sheds. A total of 7,977 bushels of fruit was put through this unit. Two 5 K.W. electric heaters maintained an average temperature of 108 degrees against an average air and fruit temperature of 63 degrees. The total liquid capacity was 120 gallons, and the average cost of heating was 27/100 cent per bushel.

## Is Electrical Heating Practical?

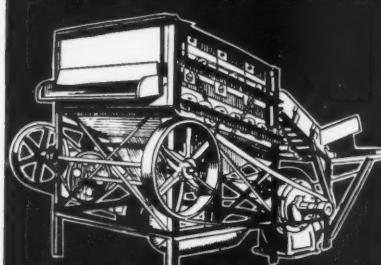
It is not the desire of the writers to present this method as the best or only way of heating apple washing solutions. However, the figures presented were taken under actual packing shed conditions on types of washers which are commonly used in the Central West. If electric power is already available, it is a method well worth consideration for growers handling from 350 to 1,200 bushels of fruit daily. It must be remembered, however, that each 5 K.W.



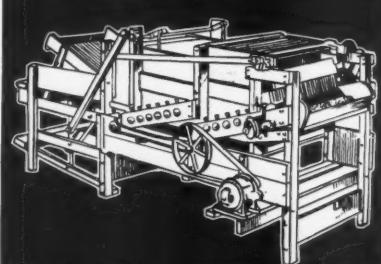
FLOTATION TYPE "BEAN" FRUIT WASHER AND CLEANER-DRYER MODEL "Z"



"BEAN" AND CUTLER GRADERS  
ALL STYLES, SIZES AND PRICES



BEAN 2-WAY CLEANERS WITH A  
COMBINATION OF CLOTHS & BRUSHES  
BUILT IN SMALL AND LARGE SIZES.



BEAN FRUIT WASHERS ARE MADE  
IN SEVERAL STYLES AND SIZES FROM  
GROWERS MODELS TO LARGE  
PACKING HOUSE SIZES PRICES \$250.00  
AND UPWARD. • • • • •

## FRUIT WASHING IS EASY Inexpensive and Necessary

Necessary because it gives you bright clean fruit and better prices.

Necessary because it enables you to comply with the tolerance restrictions.

Smart growers are spraying diligently to protect their fruit and washing to protect their sales. They tell us that washing is less complicated than other production operations. That washing actually makes a profit from better sales of clean fruit.

Bean now makes two sizes of Flotation Washers with unexcelled efficiency that are actually cheaper than home made washers of equal capacity.

It is recognized that under certain conditions the only type of washer that will remove heavy residue deposits is the Bean Under Brush Flood Type Fruit Washer. It is built in three sizes and can be furnished with a complete drying unit. Get our complete literature describing these units.

We want you to fully understand that washing is a money maker for you. Don't decide until you get all the facts. Write today for complete information on Packing House equipment, Flotation and Brush type washers.

Ask for catalog No. 15.

**JOHN BEAN MFG. CO.**

Division Food Machinery Corporation

Lansing, Mich.

San Jose, Calif.

heater requires about the same power as a 5 H.P. motor and in many packing sheds the use of electric heating equipment will require additional wiring to supply such a large increase in power consumption. Under the conditions in which our data were collected it cost from one fourth cent to 83/100 cent per bushel to heat the washing solutions, and the costs seemed to depend mostly on the temperature maintained and the capacity of the washer.

## Are Apple Washing Costs Prohibitive?

These records, covering a four-year period, indicate that it costs from 84/100 cent to two cents per bushel to wash apples. The rather wide variation in cost depended mostly on

the hourly capacity as well as the volume of fruit put through the washer each year. Many of us can remember when the cost of spraying for the control of new insect pests, such as San Jose scale, seemed like an almost prohibitive obstacle to profitable fruit growing and, while any additional production expense at this time is regrettable, we still have confidence in the fruit grower spirit and determination which have overcome much greater difficulties in the past.

## Information on Cider

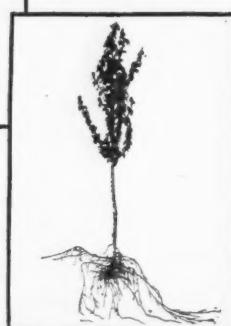
Detailed information on cider making on the farm and on the clarification, filtering, preserving, storing, and carbonation of apple cider is given in New York Experiment Station Circular 149, by Prof. W. F. Walsh. The circular may be obtained upon request to the Station at Geneva.

# trees PLANTED IN BLASTED SOIL *grow faster*

YOUNG, fibrous roots of a newly planted tree cannot reach out into fertile feeding area through hard compact subsoil surrounding a spade-dug hole. The explosion of dynamite in ground where a tree is to be planted shatters the subsoil, making it porous—allowing the surface water to penetrate to greater depths, thus preserving necessary moisture during disastrous dry seasons. Trees planted in dynamited soil develop a strong, healthy root system which speeds up maturity, improves production and increases the value of your orchard. Write for complete details of methods of using explosives to prepare subsoil for setting trees to ensure their rapid growth and development.



*Left. Tree planted in spade-dug hole without use of explosives before planting. The hard compact subsoil has prevented root growth.*



*Right. Subsoil blasted before planting tree. Note extended root system, ensuring rapid, vigorous growth.*

**E. I. DU PONT DE NEMOURS & CO., INC.**  
Agricultural Extension Section  
Wilmington, Del.



PAGE 10

## INTERNATIONAL APPLE CONVENTION

By WILLIAM H. ZIPP

FROM all parts of the country and from foreign territory as well, men interested in the apple industry, and their families, will gather in Cleveland August 13 to 16, inclusive. The meeting of these apple enthusiasts will inaugurate the fortieth annual convention of the International Apple Association.

Pre-convention prospects indicate that more than 1,200 boosters of the apple and pear will be present for the proceedings which get under way Tuesday, August 13. The program for the opening day is of the "get-acquainted" type and is garnished with a golf tournament before lunch, a tea for the ladies in the afternoon, and a gala party in the evening.

Following the registration and get-together Tuesday, the first business session will start Wednesday morning at 9.

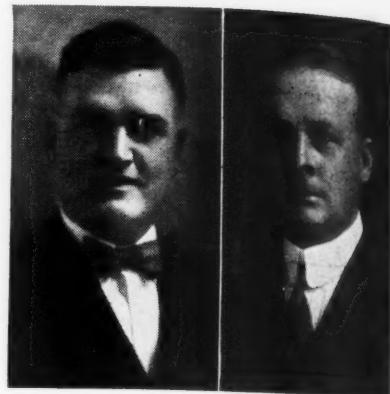
Just before the initial group meeting a complimentary breakfast will be given by the president of the association.

The business sessions have been planned so as to be of interest to all persons connected with the industry. Those who have been in charge of selecting the speakers have tried to pick these men so that those in attendance will have the latest and most accurate information on pertinent problems of the trade. These speakers (see page 4), in addition to presenting timely and important subjects, will lead the discussions from the floor. The latter feature has been of outstanding merit at past conventions.

Wednesday night will find the great Northern Ohio Food Terminal decorated in true festival style for the convention carnival. The terminal, teeming with busy workers and chugging trucks by day, will be turned into a playground for the merry-makers on Wednesday evening.

Climaxing the four-day meeting will be the banquet scheduled for Thursday night. This event is one of the outstanding in the convention series. The final business session follows on Friday morning.

On the convention floor will be exhibit booths with an extensive variation of displays. As in the past, monetary prizes will be awarded to the organizations having the best exhibits and to the person who writes the best statement on the exhibit which he or she thinks is the most outstanding. The principal prize of the meeting is to be a new automobile which is being presented by the Cleveland committee.



*Members of the executive committee of the International Apple Association, John R. Baldwin, St. Louis (left) and E. W. J. Heary, New York.*

Another feature of the meeting will be the convention reference book which contains the roster of members and the program.

Those who are planning to attend the convention are urged to make arrangements with Donald Pocock, chairman of the Cleveland hotel committee, so that he can care for the hotel facilities. Mr. Pocock is located at the Northern Ohio Food Terminal, Cleveland.

The International Apple Association embraces 21 countries and its membership roster is made up of men in all branches of the industry, growers, distributors, and professional workers. The conventions of this organization are always of benefit from the business angle, as well as providing a meeting place and fellowship for those who daily live and work with that popular sovereign, King Apple.

### ORCHARD PRACTICES

*(Continued from page 6)*

ing of the fruit must be eliminated in the process, however, if the product is to reach the market in prime condition.

Another is the use of the stationary spray outfit which has slowly come into use in the East. The cheaper and easier application of materials is the argument in favor of any shift to this type of equipment.

In the end the solution to the fruit growing problem in America is—first, high annual production per acre; next, and associated with it, is more economical production; and probably third, the introduction of superior varieties of fruits and the development of improved strains of the old varieties.

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# STATE HORTICULTURAL NEWS

## New Jersey Notes

NINE commercial small fruit growers from the various berry producing sections of New Jersey have been appointed to the New Jersey Small Fruits Council, according to Byron T. Roberts, president of the New Jersey State Horticultural Society. The members include Howard DeCou, of Merchantville; Edgar Cubberly, Trenton; C. William Haines, Masonville; Gilbert Shippard, Cedarville; Milton Tice, Bridgeton; Anthony Rizzotte, Hammonton; Wilbur Kuhns, Cliffwood; Willard Kille, Swedesboro; and George Campanella, Hammonton.

## Indiana to Enforce Fruit Package Marking

A RATHER interesting apple exhibit was set up at the time of the Indiana Horticultural Society winter meeting in January. A number of packages of apples were bought just as they were offered for sale in various stores and their contents were carefully examined by J. E. Dickerson, Federal-State Inspector for this district. The grade and size stamped on the package by the grower was placed on each container along with the net weight of the apples. If the grower's name, address, variety, grade, and minimum size were not

marked on the container, such facts were listed.

The purpose of the exhibit was to give all Indiana commercial apple growers an idea of the grades and standards now being used by the commercial growers of the state. It also showed, in a small way at least, just how Indiana growers were complying with the specific requirements by law and how they were comparing with apples from adjoining and more distant states. Some of the results showed failure to include names or addresses of the growers on the packages, incorrect labeling as to U. S. grades and minimum sizes, and failure to label the variety. Others exceeded the tolerance on defects or minimum size, etc.

EVERETT WRIGHT, Sec'y,  
Lafayette.

## Ohio Meeting

THE Ohio State Horticultural Society will hold its northern Ohio summer meeting at the Grand River Orchards, Geneva, Ashtabula County, on Thursday, August 15. The main orchard is located three miles west of Harpersfield on State Route 307. The society cordially invites all fruit growers, their wives and families to attend this all-day meeting at one of the most interesting large commercial apple orchards in the United States.

Registration will begin at 9:00 A.M. At 9:45 a tour, by truck, will be made through the irrigation plant at the Grand River. At 10:30, a driving tour of the orchards is scheduled. Arrangements are being made to secure a loud speaker so that orchard records can be explained to all on the tour by L. G. Dean, manager of the orchards. Cafeteria lunch will be served at noon in an air conditioned cold storage room, following which the program will be held in another air conditioned room in the storage. W. T. Mann, president and Mr. Dean, will speak on the development of the orchards, growing practices, picking, grading, packing, storage and marketing. A Question Box will be conducted by W. J. Welday, president of the society.

Commercial concerns have been invited to attend the meeting with commercial exhibits. On the following day, Friday, August 16, the society members will go to Wooster to attend Orchard Day at the Ohio Experiment Station. The society is co-operating with the Experiment Station in bringing their principal speaker, Dr. George F. Potter, University of New Hampshire, Durham, N.H.

F. H. BEACH, Sec'y,  
Columbus.

## Florida Frost Service

A FEDERAL-STATE service for forecasting frosts and freezes and for advising Florida citrus growers on the best methods of protecting their fruit from these adverse weather conditions will be established in the state next fall, Dr. Wilmon Newell, director of the Florida Experiment Station, has been informed by Washington officials of the U.S. Weather Bureau.

**FERTILIZE YOUR  
FRUIT TREES.. THIS FALL  
with Granular 'Aero' Cyanamid**

GET THE JOB OUT OF THE WAY OF SPRING WORK

*Even though the top is dormant —*

**THE ROOTS ARE STORING UP NITROGEN AND  
OTHER PLANT FOODS FOR NEXT YEAR'S USE**

**FALL-FERTILIZED TREES ARE LESS SUBJECT TO INJURY FROM SPRING FREEZES**

*'Aero' Cyanamid is the preferred source of nitrogen for fall use  
because it is NON-LEACHING*

Send for Leaflet F100 on fall fertilization and our regular fruit Leaflet X307.

**AMERICAN CYANAMID COMPANY**

ATLANTA, GA.

NEW YORK, N.Y.



**'Aero' Cyanamid is Nitrogen plus Lime**

# Kellogg's WITH PEACHES

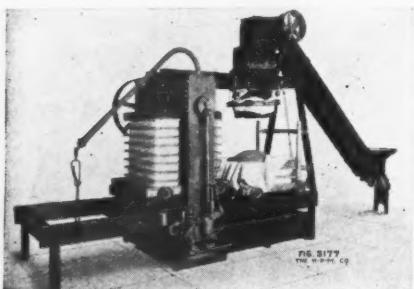


AT THIS time of year Kellogg's advertising emphasizes the goodness of Kellogg's Corn Flakes and sliced peaches. Try them with peaches from your own orchard.

Many carloads of fruits and berries, both fresh and preserved, are eaten with the 12,000,000 daily servings of Kellogg's. Here Kellogg's Corn Flakes help the fruit grower.

The tempting goodness and fresh crispness of Kellogg's Corn Flakes have made them the most popular ready-to-eat cereal in the world. When you buy — ask for Kellogg's by name.

*H. K. Kellogg*  
OF BATTLE CREEK



## EXTRA PROFITS FROM UNDERGRADE APPLES

To make the most of your orchard crop is to make the most of an opportunity to turn the undergrade end into EXTRA PROFITS. To do this, you need a MOUNT GILEAD Hydraulic CIDER PRESS and its companion equipment. To install one of these presses is not only to secure higher prices for cider produced the Mount Gilead way because of its exceptional purity and clarity—to squeeze the last ounce of juice out of the fruit—but it provides definite assurance of dependable, life-time service backed by half a century of sound experience. Investigate the tremendous possibilities of MOUNT GILEAD Cider Making Equipment today. Write for Bulletin 8010AF. It will help you get started toward extra profits.

**The HYDRAULIC PRESS MFG. CO.  
MOUNT GILEAD**

PAGE 12

# APPLE JUICES CONCENTRATES AND SYRUPS

By H. D. POORE

LABORATORY OF FRUIT AND VEGETABLE CHEMISTRY, BUREAU OF CHEMISTRY AND SOILS,  
U. S. DEPARTMENT OF AGRICULTURE, LOS ANGELES, CALIFORNIA

## PART II

### Methods of Preservation

**Freezing.** Apple juice was first frozen in less than 30 minutes in 8-ounce open cans set in circulating alcohol at  $-45.6^{\circ}\text{C}$  ( $-50^{\circ}\text{F}$ ), cooled with solid carbon dioxide. The smooth-grained uniformly frozen cakes, wrapped in moisture proof Cellophane and stored at  $-13.9^{\circ}\text{C}$  ( $7^{\circ}\text{F}$ ), kept very well except for a slight darkening and some loss of flavor. The juice was next quick frozen in crown-cap bottles, vacuum closure glasses and tin cans. Other lots were slow frozen by bottling and placing in a room at  $-17.7^{\circ}\text{C}$  ( $0^{\circ}\text{F}$ ). All the juices in closed containers stored for more than a year at  $-13.9^{\circ}\text{C}$  ( $7^{\circ}\text{F}$ ) remained brilliantly clear, and were characteristically like the fresh juice. As has been found with many other fruit products and juices<sup>7</sup>, freezing preservation yields an apple juice that is more like the fresh juice than that produced by any other method. The popularity of frozen products will probably increase as the transportation and consumer distribution problems are perfected.

**Pasteurization.** The following methods of pasteurization have been used in bottling and canning the clarified juice, the temperatures that have been found the most satisfactory being given:

1. Heating the juice to  $80^{\circ}\text{C}$  ( $176^{\circ}\text{F}$ ) as quickly as possible in an open container, filling the unsterilized bottles or cans full, sealing and cooling either with a fan or water. The bottle caps were sterilized with boiling water, but the can covers were merely washed.

2. The juice was placed in bottles and sealed, leaving an air space to allow for expansion. Sterilization was accomplished by placing the bottles in tap water, heating it to  $80^{\circ}\text{C}$  ( $176^{\circ}\text{F}$ ), removing the bottles when the juice had reached a temperature of  $78^{\circ}\text{C}$  ( $172.4^{\circ}\text{F}$ ), and cooling as under No. 1. About 15 minutes were required after the water came to  $80^{\circ}\text{C}$  for the contents of 8 ounce bottles to reach  $78^{\circ}\text{C}$ .

3. No. 10 unlacquered cans were filled with juice and held in agitated water at  $83^{\circ}\text{C}$  ( $180^{\circ}\text{F}$ ) until the juice had reached  $74^{\circ}\text{C}$  ( $165.2^{\circ}\text{F}$ ), when the cans were capped and cooled in running tap water.

4. The juice was flash-pasteurized at  $78-80^{\circ}\text{C}$  ( $172.4-176^{\circ}\text{F}$ ), using a silver coil containing 9 feet of tubing three eighths inch in diameter. Unsterilized crown cap bottles, ranging in size from 4 to 32 ounces, were filled full, sealed with sterilized caps and cooled by the methods used under No. 1.

All the samples were stored at room temperature, and examinations made after six months, and in most cases after a year, showed that the No. 4 juices were of very good flavor with little if any cooked taste. No. 1 juices were not quite as good, and No. 2 juices had darkened, because of the air present, and had acquired a metallic oxidized flavor. There was also a heavy sediment present. The No. 3 juices were about the same as the No. 1's, some of the volatile flavoring constituents having been lost during the heating in open containers. The canned juices were considered to be not quite as good as those put up in glass under the same conditions.

**Sterilization by Filtration.** The final method tried in preserving apple juice was the use of a silver plated brass wall-type Seitz filter holding four 30-cm EK sterilizing discs. These discs, composed of about one third asbestos and two thirds paper pulp, are especially constructed to remove all bacteria, yeasts and other organisms from the clear cold juice, so that a final product is obtained that has not been heated above room temperature during the entire process of pressing, clarification, and sterilization.

After the filter was assembled it was sterilized for 10 minutes with steam and allowed to cool somewhat before the juice was pumped into it. As the discs retained considerable water it was necessary to discard the first two quarts of juice leaving the filter before starting to fill the bottles, which had been sterilized in boiling water. A rubber tube with a pinchcock was attached to the outlet, which was protected by a large inverted glass funnel, improvised from an acid bottle with the basal half removed. The bottles were removed, one at a time, from the water in which they had been sterilized, drained, kept inverted until placed under the funnel, and filled to within about three-eighths inch of the top, the filling requiring about

AMERICAN FRUIT GROWER

AUGUST, 1935

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25 seconds. The cap, previously sterilized in boiling water and handled with tongs, was then placed over the top while the bottle was still under the funnel. The bottle was removed to the hand-capping machine, and the cap was raised half an inch above the mouth, while a jet of steam was played over the opening for a few seconds to sterilize and drive out most of the air. After sealing, the bottles were numbered serially.

Twenty-nine eight-ounce bottles from each of three varieties of juice were put up by this method and the first, last and middle bottles were incubated at 26.8°C. (80°F) for several weeks without any sign of fermentation or mold growth. However, owing to the fact that the technic of bottling by this method had not been completely perfected with the first lot of juice, some mold developed in four bottles after 20 days storage. Seven more had a little mold after 68 days, but none appeared in any of the others of this lot after 184 days. After capping it was found that too much air space had been left in some bottles, for instead of three-eighths inch, as high as one and one-fourth inches were present. The oxygen in this relatively large quantity of air no doubt supported the mold growth, as only one bottle developed mold in the second lot, and none developed in the third where more care was exercised in filling and capping. No sign of fermentation or spoilage other than mold growth appeared in any of the bottles put up by the Seitz method. A few bottles in the first lot contained a noticeable amount of sediment after six months, but only a mere trace, the same as found in the pasteurized juice, appeared in the other two lots.

When treating brilliantly clear juice, the capacity of the Seitz filter, using four EK discs and operating under one pound pressure, was found to be 22 gallons per hour.

Examinations of the flash-pasteurized and germ-filtered juices from the same varieties of apples showed only slight differences, possibly in favor of the filtered. As stated previously, flash-pasteurized juice has very good flavor, generally without any noticeable cooked taste, so that it compared favorably with the Seitz juice, which is practically the same before and after sterilizing.

(Reprinted by permission *The Fruit Products Journal*. To be continued next month.)

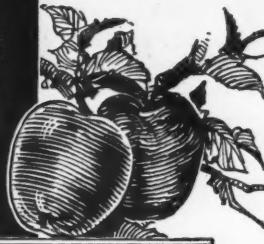
(Acknowledgment—Appreciation is hereby expressed for the assistance of E. M. Chace, Chemist in Charge, Laboratory of Fruit and Vegetable Chemistry, under whose supervision the work was conducted.)

#### Literature Cited

- Chace, E. M. and Poore, H. D. Quick freezing citrus fruit juices and other fruit products. Ind. Eng. Chem. 23, 1109 (1931).

AUGUST, 1935

## Orchard RESULTS Prove its Killing Power



Intensified commercial use has confirmed its increased toxicity and quicker kill. Letters from hundreds of growers, everywhere, report conclusive evidence of consistently better control with

# "Astringent"

### ARSENATE OF LEAD

Thorough control of the first brood will be vitally important this year, to lessen the second and third brood menace and to cut down late season cover sprays. You need "Astringent" Arsenate of Lead this year. It costs no more.

## ORCHARD BRAND

REG. U.S. PAT. OFF.  
SPRAYS AND DUSTS

REG. U.S. PAT. OFF.

Arsenate of Lead  
Calcium Arsenate  
Arsenite of Zinc  
Zinc Arsenical (Late Covers)  
Paris Green  
Bordeaux Mixture  
"Dritomac" Sulphur  
"Apple Dritomac" Sulphur  
Paradichlorobenzene  
Nicotine Sulphate (40% Nicotine)  
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This year the entire seat setup at the Nationals has been changed in that all seats are reserved for specific days.

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DAIRY GOAT JOURNAL, DEPT. 21, FAIRBURY, Nebr. Monthly Magazine, 25c yearly; 5 months 10c.

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# WHO'S WHO IN POMOLOGY • WASHINGTON •

Famed throughout the world for its fruit production, the state of Washington has many men to grace its "Who's Who in Pomology." Constantly engaged in research, extension and the practical phases of the industry, these men are among the leaders of the nation in modern pomological endeavor.

### State College and Experiment Station, Pullman

**W. J. Clore**, B.S., Research Asst. of Experiment Station.

**D. J. Crowley**, B.S., Specialist in Cranberry Investigations, Cranberry Investigations Laboratory, Long Beach.

**George W. Fischer**, Ph.D., Asst. in Plant Pathology.

**Arthur J. Hanson**, M.S., Entomologist, Western Washington Experiment Station, Puyallup. Control of insects on small fruits and cherries.

**F. D. Heald**, Ph.D., Head, Dept. of Plant Pathology of College and of Div. of Plant Pathology of Experiment Station.

**C. S. Holton**, Ph.D., Agent for U.S.D.A. in Plant Pathology at Experiment Station.

**Glen Huber**, Ph.D., Plant Pathologist, Western Washington Experiment Station.

**L. K. Jones**, Ph.D., Assoc. Prof. and Assoc. Plant Pathologist. Interested in control of diseases of small fruits, cherry leaf spot and apple scab.

**James Marshall**, M.S., Asst. Entomologist, Wenatchee.

**O. M. Morris**, M.S., Prof. of Hort. of College; Horticulturist of Experiment Station. Engaged in teaching and research, with wide interests in the horticultural field.

**E. L. Overholser**, Ph.D., Head, Dept. of Hort. of College and of Div. of Hort. of Experiment Station. Interested in fruit maturity, spray residue removal, winter injury, pollination of deciduous fruits, effects of sprays on foliage and fruit and orchard irrigation and fertilization.

**F. L. Overly**, M.S., Assoc. in Horticulture, Wenatchee.

**C. D. Schwartz**, Ph.D., Asst. Horticulturist of Experiment Station; Horticulturist of Western Washington Experiment Station, Puyallup.

**C. L. Vincent**, M.S., Asst. Horticulturist, Experiment Station; Asst. Prof. of College. Interest is with small fruits. Sec'y-Treas., Washington State Horticultural Association.

**R. L. Webster**, Ph.D., Head, Dept. of Zoology of College and of Div. of Entomology of Experiment Station. Author of articles and bulletins on fruit insects.

### U. S. Dept of Agriculture

**H. C. Diehl**, B.S., Sr. Physiologist. Frozen Fruits Laboratory, Seattle.

**B. D. Ezell**, M.S., Asst. Horticulturist, Wenatchee. Fruit handling investigations.

AMERICAN FRUIT GROWER

**Fisk Gerhardt**, Ph.D., Chemist, Wenatchee. Fruit ripening research.

**S. W. Griffen**, M.S., Chemist in Charge, Laboratory, Div. of Insecticide Investigations, Wenatchee. Research on spray residue problems.

**C. P. Harley**, M.S., Bureau of Plant Industry, Wenatchee. Research on deciduous fruit production and fruit tree physiological problems.

**M. P. Masure**, M.S., Jr. Physiologist, Regional Development of Horticultural Industry, Wenatchee. Physiology of fruit production.

**E. J. Newcomer**, A.B., Senior Entomologist, Laboratory, Div. of Fruit Insect Investigations, Yakima. Testing of insecticides for codling moth control in relation to residue removal.

**E. L. Reeves**, B.S., Jr. Pathologist, Laboratory, Div. of Fruit Disease Investigations, Wenatchee. Perennial apple canker.

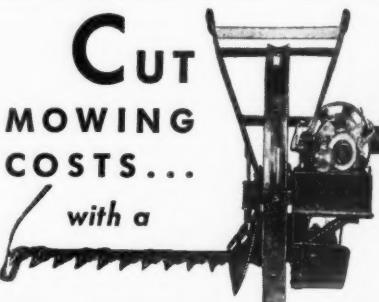
**A. L. Ryall**, M.S., Asst. Pomologist, Yakima. Spray residue removal investigations.

**Edwin Smith**, B.S., Horticulturist, Wenatchee. Fruit handling, transportation and storage investigations.

**M. A. Yothers**, M.S., Assoc. Entomologist, Sublaboratory of Div. of Fruit Insect Investigations, Wenatchee. Field studies of baiting orchard sanitation and the use of parasites as supplementary control measures for codling moth.

### State Horticultural Association

**F. E. DeSellem**, President, Wenatchee.



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AUGUST, 1935

## NORTHERN NUT GROWERS TO MEET IN ROCKPORT, INDIANA

THE 26th annual meeting of the Northern Nut Growers' Association will be held in Rockport, Ind., September 9 and 10, 1935. J. F. Wilkinson, an active and enthusiastic nut grower and nurseryman in Rockport, has arranged an interesting and comprehensive program which will cover many phases of northern nut growing.

The first day of the meeting, September 9, will be devoted to talks and discussions. C. A. Reed, U.S.D.A., will discuss, "Nut Varieties for the Middle Northern Zone" and also "The Pollination of Nut Trees." H. F. Stoke, Roanoke, Va., a pioneer in the commercial cracking and marketing of walnuts, will present his experiments along that line. Mr. Stoke is also an authority on the culture and varieties of blight resistant chestnuts, which subject he will also present. Nut culture west of the Mississippi River will be discussed by Charles Stephens of Columbus, Kans. John W. Hershey, tree crop specialist for the Tennessee Valley Authority, will discuss, "Why More Nut Trees Are Not Planted."

Prof. N. F. Drake, Fayetteville, Ark., will discuss, "Black Walnut Varieties;" D. C. Snyder, Center Point, Iowa, "The Most Promising Nut Varieties for Iowa," and J. G. Duis of Shattuc, Ill., "New Kaskaskia River Pecans and Hickories." "Chestnut Growing in Southern Illinois" will be presented by R. B. Endicott, and Prof. A. S. Colby of the University of Illinois will speak on, "The Next Step in Illinois Nut Culture." H. C. Neville will present, "The Value of the Pecan Industry in Southern Illinois." A. M. Whitford, Farina, Ill., will discuss, "Simplified Nut Tree Propagation." Prof. Monroe McCown of Purdue University will present, "Nut Trees in the Farm Planting Program." Prof. J. A. McClintock, also of Purdue, will talk on, "Saving America's Nut Resources."

The recent prize nut contest of the association will be presented by Dr. W. C. Deming, chairman of the judging committee; the Ohio nut contest by C. F. Walker of Cleveland, and the New York contest by L. H. MacDaniels of Cornell.

Several other talks, chiefly of a general nature, have also been planned. A question box will also be conducted and new and old varieties of nuts will be exhibited. Exhibits of varieties and promising seedlings will be welcomed and should be addressed to J. F. Wilkinson at Rockport. The meeting will be held in the assembly room of the Court House.

The second day of the meeting will be devoted to a field trip. Mr. Wilkinson's nursery will be visited, where nut tree propagation will be demonstrated. A large commercial planting of more than 1200 budded black walnuts, pecans, hybrids and hickories will also be seen. Several smaller plantings and top-worked trees are also in the vicinity. Perhaps the most interesting item for northern nut growers will be the immense groves of native seedling pecans for which the region is noted.

Rockport is on a high rock bluff overlooking the beautiful Ohio River, a view of which may be had for several miles each way. Why not plan a trip to Rockport and the meeting? Non-members will also be welcome at the meeting.

G. L. SLATE, Sec'y,  
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International prices are surprisingly low right now, with the 1½-ton Model C-30 selling at the lowest price ever quoted on a 6-cylinder International Truck of this capacity. Visit the International Truck dealer or Company-owned branch and investigate the model your job requires. Sizes range from the ½-ton pick-up to the big heavy-duty six-wheelers.

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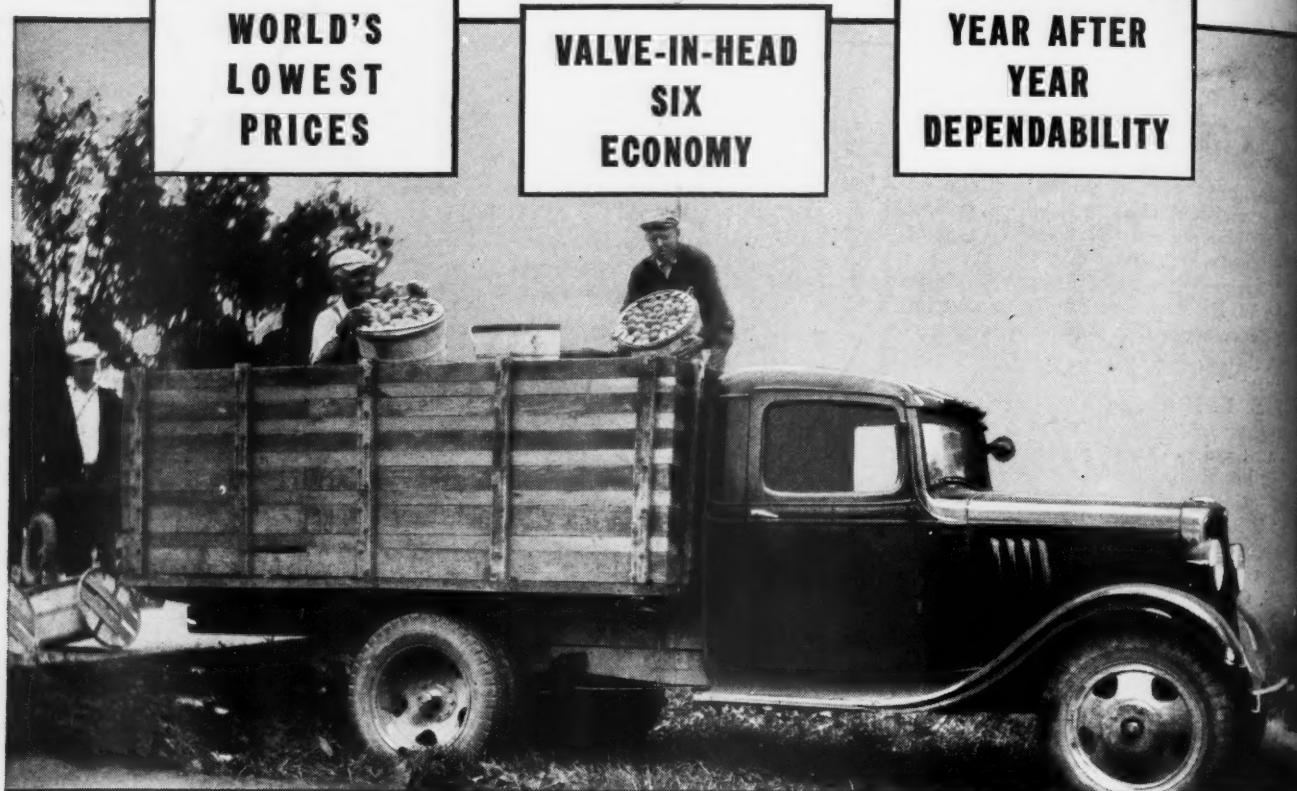
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